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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/737,117	12/16/2003	David Alan Burton	END920020059US1	6052
45216	7590	03/08/2006	EXAMINER	
KUNZLER & ASSOCIATES 8 EAST BROADWAY SUITE 600 SALT LAKE CITY, UT 84111			CHOI, WOO H	
			ART UNIT	PAPER NUMBER
			2189	

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/737,117

Applicant(s)

BURTON ET AL.

Examiner

Woo H. Choi

Art Unit

2189

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                               |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/16/03</u> . | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 – 3, 6, 15 – 18, 23 – 26 and 28 – 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Parsons (US Patent No. 6,574,749).

With respect to claims 1, 3, 15, 16, 23 – 26, 28 and 30, Parsons discloses an apparatus for fault tolerant virtual memory management, the apparatus (figure 1) comprising:

a processing node (node 102) configured to access at least one storage device and respond to paging synchronization messages, the processing node comprising:

a local memory (122), and a memory manager configured to manage a plurality of memory blocks contained within the at least one storage device (118) and the local memory as directed by the paging synchronization messages (figure 5, 506, 510, see also figures 4 and 6).

3. With respect to claims 2, 17 and 29, the paging synchronization message includes a lock release request (figure 4).

4. With respect to claims 6 and 18, the memory manager is further configured to allocate memory blocks and associate a globally unique identifier therewith (col. 8, lines 26 – 29, see also 41 – 44, shared pages require global addresses or page numbers).

5. Claims 1, 3 – 5, 7 – 16, 19 – 28 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Carter *et al.* (US Patent No. 5,909,540, hereinafter “Carter”).

6. With respect to claims 1, 3, 15, 16, 23 – 26, 28 and 30, Carter discloses an apparatus for fault tolerant virtual memory management, the apparatus (figure 8) comprising:

a processing node (236) configured to access at least one storage device and respond to paging synchronization messages, the processing node comprising:

a local memory (232, 234), and a memory manager configured to manage a plurality of memory blocks contained within the at least one storage device (236) and the local memory as directed by the paging synchronization messages (figure 9 and col. 32, lines 50 – 61, when notified of a node failure, GRD pages are discarded and synchronously repopulated).

7. With respect to claims 4 and 27, the at least one storage device comprises a plurality of redundantly arranged storage devices (col.18, line 1).

8. With respect to claim 5, the apparatus further comprises a storage cache memory (col. 17, lines 51 – 53).

9. With respect to claims 7, 8, 19 and 20, the memory manager further comprises a policy assignment module configured to associate a policy with a memory block allocation size, wherein the policy is user defined (col. 12, lines 12 – 34, allocation policy is defined by the users' extension requests).

10. With respect to claims 9, 10 and 21, the processing node is a storage controller and the memory manager is configured to conduct staging and destaging operations (col. 17, lines 51 – 58).

11. With respect to claim 11, the memory manager further comprises a copy module configured to selectively use a plurality of copy methods (col. 18, lines 3 – 4).

12. With respect to claims 12 and 22, see col. 24, 43 – 50, replication controller employs invalidation (message or notification based see col. 14, line 9), migration and other processes to maintain coherency or synchronism, which reads on the messaging copy method.

13. With respect to claim 13, the memory manager is further configured to provide a memory pointer in response to a memory pointer request (figure 4).

14. With respect to claim 14, the memory pointers comprising read only pointers and write pointers (col. 14, lines 44 – 64).

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Woo H. Choi whose telephone number is (571) 272-4179. The examiner can normally be reached on M-F, 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald Bragdon can be reached on (571) 272-4204. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Woo H. Choi  
March 3, 2006